

electric effects, and the second *opposing* them; they bring the two into direct relation; they prove that either can determine the other, thus making what appears to be cause and effect convertible, and thereby demonstrating that both chemical and electrical action are merely two exhibitions of one single agent or power (651, etc.).

768. It is quite evident, that as water and other electrolytes can conduct electricity without suffering decomposition (721), when the electricity is of sufficiently low intensity, it may not be asserted as absolutely true in all cases, that whenever electricity passes through an electrolyte, it produces a definite effect of decomposition. But the quantity of electricity which can pass in a given time through an electrolyte without causing decomposition is so small as to bear no comparison to that required in a case of very moderate decomposition, and with electricity above the intensity required for electrolysis, I have found no sensible departure as yet from the law of *definite electrolytic action* developed in the preceding parts of these Researches (518, etc.).

769. I cannot dismiss this division of the present paper without making a reference to the important experiments of M. Aug. de la Rive on the effects of interposed plates.¹ As I have had occasion to consider such plates merely as giving rise to new decompositions, and in that way only causing obstruction to the passage of the electric current, I was freed from the necessity of considering the peculiar effects described by that philosopher. I was the more willing to avoid for the present touching upon these, as I must at the same time have entered into the views of Sir Humphry Davy upon the same subject,² and also those of Marianini³ and Ritter,⁴ which are connected with it.

If v. General Remarks on the active Voltaic Battery

770. When the ordinary voltaic battery is brought into action, its very activity produces certain effects, which react upon it, and cause serious deterioration of its power. These render it an exceedingly inconstant instrument as to the *quantity* of effect which it is capable of producing. They are already,

¹ *Annales de Chimie*, torn, xxviii. p. 190; and *Memoires de Geneve*.

² *Philosophical Transactions*, 1826, p. 413.

³ *Annales de Chimie*, torn, xxxiii. pp. 117, 119, etc.

⁴ *Journal de Physique*, torn. lvii. pp. 349, 350.